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September 10, 1990

U.S. Department of Interior
Bureau of Land Management
Salt Lake District
2370 South 2300 West
Salt Lake City, Utah 84119

Attention: Mr. Deane Zeller
District Manager

RE: Review Comments
Revised USGS Scope of Work
Bonneville Salt Flats Investigation

Dear Mr. Zeller:

I have reviewed the revised USGS scope of work titled *Investigation to Identify and Quantify Mechanisms Causing Reduction of Salt Thickness of the Bonneville Salt Flats, Western Utah* and this letter transmits my comments.

General Comments

The revised scope of work (scope) has been modified to include addressing all potential causes of salt loss not just brine withdrawals due to mining activities. The Problem and Objectives sections of the scope are now more general to address all potential causes. I consider these changes more acceptable.

I believe that it will be difficult to finalize the approach and overall scope of the study at this time. The focus of the study will probably change as information and data is collected and analyzed. The Approach section of the scope may be too specific at this point in time. I believe that the USGS should first perform mass balance calculations of the overall brine system to determine which potential causes are significant. Then the USGS can finalize the tasks to address only those major causes.

In order to perform the mass balance calculations, it will be necessary to review and validate previous reports prepared by Lines and Turk and the BLM salt loss calculations. I am still concerned that the UDOT and BLM data has not been thoroughly reviewed as part of the BLM salt loss calculations. Did the BLM compare the hard salt layer to the hard and soft salt layers that UDOT had measured? What about the potential for changes in salt density

during the study period? Were appropriate methods used to calculate the salt crust volumes? My preliminary review of the Lines report indicates that he significantly overestimated the movement of brine from the north to the south of I-80. If wind transport is a very insignificant cause based on mass balance calculations, why expend significant time and expense evaluating wind transport.

Per part 3 of agenda

Study Element 1

I am concerned that the expenditure of $211,600 is excessive to evaluate the transport of salt via wind driven surface ponds. The mass balance should first be performed to determine if surface ponds result in a significant loss of salt. If not a significant cause, reduce the scope of this element. If a significant cause of salt loss, I also believe that the scope could be reduced and still generate data to evaluate the salt loss.

show

screen w/ mass balance, look at water level when ponded next to ditch, final less rigorous phased approach.

Study Element 2

I did not see any mention of installing monitor wells adjacent to I-80. I recommend that monitor wells be installed at two or three cross sections to evaluate the flow of brine across I-80. The monitor wells should be used to determine the hydraulic conductivity of the materials that make up the road fill and natural soils and the mechanisms for brine movement.

I believe it is premature to perform modeling until mass balance calculations have been performed and sufficient data has been collected to confirm that modeling is necessary to assess the movement of brine within the system. Costs for modeling was not identified, however, I assume that $200,000 of the budget would be used for modeling. I recommend that the decision on whether to perform modeling be made in 1991 after mass balance and initial data collection has been performed.

There is some question as to, if salt loss has occurred at the BSF, is the surface elevation now lower. This needs to be addressed in the surveying which will be performed as part of this element.

no baseline data

Study Element 3

I recommend that this element be deleted unless the mass balance calculations indicate that significant salt is possibly being lost due to wind transport.

Study Element 4

I recommend that this element be deleted from the scope of work. I believe that the money could be better spent evaluating the Bonneville Salt Flats in more detail than

obtaining information on Pilot Valley. I am concerned that the Pilot Valley playa may not be similar enough to the BSF to be used as a control.

Please call me if you have any questions or would like to discuss any of these comments further.

Sincerely,

BINGHAM ENGINEERING

Stanley L. Plaisier, P.E.
Senior Geotechnical Engineer

cc: Mr. Carl Lesher, Reilly Industries
Mr. John Kirkham

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